CLAIMS

WHAT IS CLAIMED IS:

1. A gear reduction unit comprising:

a drive shaft;

an electric motor that rotatably drives the drive shaft,

a magnet disposed on the drive shaft;

a sensor disposed in proximity to the magnet; and

a removable connector that supports the sensor and carries current to the electric motor.

2. The gear reduction unit according to claim 1, wherein a maximum distance between the sensor and the magnet is 4 mm.

3. The gear reduction unit according to claim 2, wherein the distance between the sensor and the magnet is 2 mm.

4. The gear reduction unit according to claim 1, wherein the magnet is a ring having at least one North pole and at least one South pole and is polarized transverse to a longitudinal axis of the drive shaft.

5. The gear reduction unit according to claim 4, wherein the magnet has a plurality of North poles and a plurality of South poles.

6. The gear reduction unit according to claim 1, wherein the connector comprises a circuit board defining a plane, wherein the sensor is fixed to the circuit board and offset relative to the plane formed by the printed circuit board.

7. The gear reduction unit according to claim 6, further comprising connection tabs that are fitted to the sensor to fix the sensor to the circuit board..

8. The gear reduction unit according to claim 6, wherein the connector further comprises electrical supply contacts to supply current to the motor.

9. The gear reduction unit according to claim 1, wherein the sensor is disposed in a guide hole in the connector.

10. The gear reduction unit according to claim 1, wherein the motor comprises a housing and the connector comprises a case, wherein an interface between the housing and the case forms a watertight seal.

11. The gear reduction unit according to claim 1, wherein the sensor is a Hall effect sensor.

12. A connector for a gear reduction unit, comprising:

a circuit board defining a plane;

a sensor is fixed to the circuit board and offset relative to the plane formed by the printed circuit board; and

a case housing the printed circuit board and the sensor.

13. The connector according to claim 12, further comprising connection tabs that are fitted to the sensor to fix the sensor to the circuit board.

14. The connector according to claim 12, further comprising electrical supply contacts for supplying current to a motor in the gear reduction unit.

15. The connector according to claim 12, wherein the case has a guide hole and wherein the sensor is disposed in the guide hole.

16. The connector according to claim 12, wherein the sensor is a Hall effect sensor.